

Reply Dated December 2, 2010
To Office Action Dated June 2, 2010

FUNKE *et al.*
Appl. No. 10/578,512

Remarks

With entry of this Amendment, Claims 15-72 are pending in this application. Claim 15 is the independent claim. Claims 1-5 and 7-14 are sought to be canceled. Claim 6 was previously canceled. New claims 15-72 are sought to be entered. These changes are believed to introduce no new matter, and their entry is respectfully requested. Support for new claims 15-72 is found in the specification as filed.

A. Rejections under 35 U.S.C. § 103(a)

Claims 1-5 and 7-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of WO 03/015518, and Fischer *et al.*, US 5,262,383, in view of Fischer *et al.*, US 2003/0100604 and Fischer *et al.*, US 2003/0114312 (Office Action, page 2). Applicants respectfully traverse the rejection.

Cancellation of claims 1-5 and 7-14 renders the rejection moot. Applicants respectfully request the Examiner reconsider and withdraw the rejections.

B. The Synergistic Effects As Shown in the As-Filed Specification are Sufficient to Support the Claims

Even assuming, *arguendo*, that a *prima facie* case of obviousness has been established, which it has not, the synergistic effect exhibited by the claimed invention is sufficient to rebut a *prima facie* case of obviousness.

With respect to the data, the Examiner stated:

[A]pplicant's specification data has been reviewed, but the data there cannot be considered sufficient evidence of nonobviousness. First, it must

Reply Dated December 2, 2010
To Office Action Dated June 2, 2010

FUNKE *et al.*
Appl. No. 10/578,512

be noted that evidence of nonobviousness, if any, must be commensurate in scope with that of the claimed subject matter. *In re Kulling*, 14 USPQ2d 1056, 1058 (Fed. Cir. 1990); *In re Lindner*, 173 USPQ 356, 358 (CCPA 1972). Here, structural variations for compounds of formulae I and II are so numerous and significant that it takes more than eight pages to list them all - see claim 1. The page numbers are merely indicative of the thousands of structurally divergent compounds encompassed by the instant claims. Further, applicant has provided no data for I-1 + II-1-4. Thus, there is no data with respect to the elected subject matter.

(Office Action, page 4). Applicants respectfully disagree.

The cases the Examiner cited are inapposite. *In re Kulling* concerned a "process for the treatment of a dilute iron (II) sulfate-containing sulfuric acid solution resulting from the hydrolysis of a titanyl sulfate solution" to recover the sulfuric acid and minimize metal contaminants. *In re Kulling*, 897 F.2d 1147, 1148 (1990). The process comprised concentrating a volume of a feed solution, separating solids suspended in the concentration step, and pre-washing the separated solids using an amount of feed solution equivalent to 2-4% of the volume concentrated. *Id.* The Applicant argued that the claims were patentable because only minimal amounts of chromium and vanadium were extracted with the recited wash volumes. *Id.* at 1149. The Court affirmed the *prima facie* obviousness rejection of the Examiner and the Board, stating *inter alia* that the rejected claims read on solutions which contain neither chromium nor vanadium. *Id.* The Applicant therefore could not rely on the minimal contamination effect to rebut the *prima facie* case. *Id.*

In direct contrast to the facts of *In re Kulling*, the present specification and claims recite synergistic compositions and provide multiple examples of unexpected synergy.

Reply Dated December 2, 2010
To Office Action Dated June 2, 2010

FUNKE *et al.*
Appl. No. 10/578,512

(See, for example, the as-filed specification, pages 8 and 44-53). As such, *In re Kulling* is not relevant to the present claims.

In re Lindner concerned a broad claim to a dispersant composition comprising a water-soluble to water-dispersible phosphoric acid ester and an organic solvent soluble surfactant polybasic acid compound. *In re Lindner*, 457 F.2d 506, 507 (C.C.P.A. 1972). Both components were known in the prior art as dispersants. *Id.* The Court affirmed the obviousness rejection of the Examiner and the Board that it would have been *prima facie* obvious to have combined them for the same purpose. *Id.* The Applicant attempted to rebut the *prima facie* case with *one* example showing a synergistic effect. *Id.* at 508. The Court agreed that *one* example was not commensurate with the scope of claims.

In contrast to the facts of *In re Lindner*, the present specification provides multiple examples of unexpected synergy with the claimed compositions. (As-filed specification, pages 44-53). Therefore, *In re Linder* is not relevant to the present claims.

Furthermore, the absence of data for the elected species, I-1 + II-1-4, is not fatal to the present claims. Compound II-1-4 is structurally closely related to the tested compound II-1-9. (As-filed specification, pages 20-21). The person of ordinary skill would have had a reason to extend the synergy shown in Examples D1, D2, E1 and E2 to the elected species I-1 + II-1-4. Nonetheless, Applicants herewith provide data for the elected species I-4 + II-1-4 in declaration form (see below).

Reply Dated December 2, 2010
To Office Action Dated June 2, 2010

FUNKE *et al.*
Appl. No. 10/578,512

C. The Synergistic Effects As Shown in the Hungenberg Declaration Support the Present Claims

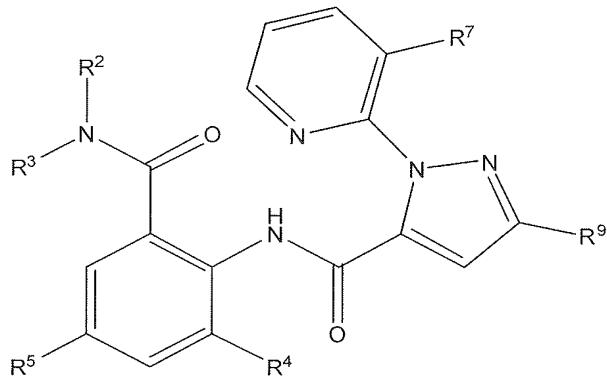
Applicants also present the Declaration of Heike Hungenberg under 37 C.F.R § 1.132 ("the Declaration") as Exhibit A. Examples A-I, described therein, provide evidence of the unexpected synergistic effects of the present invention.

In the Declaration, compounds of formula II-1 are referred to by compound number as listed in the as-filed specification. In addition there are provided test results for several additional compounds D1-D5 that have no compound number in the as-filed specification. For simplicity, all compounds of formula II-1 that are in the Declaration are provided in Table 1 below.

Reply Dated December 2, 2010
To Office Action Dated June 2, 2010

FUNKE *et al.*
Appl. No. 10/578,512

Table 1: Compounds of formula II-1 in the Declaration



Compound No.	R ²	R ³	R ⁴	R ⁵	R ⁷	R ⁹
II-1-1	H	Me	Me	Cl	Cl	CF ₃
II-1-2	H	Me	Me	Cl	Cl	OCH ₂ CF ₃
II-1-4	H	Me	Me	Cl	Cl	Br
II-1-9	H	i-Pr	Me	Cl	Cl	CF ₃
II-1-12	H	i-Pr	Me	Cl	Cl	Br
II-1-24	H	t-Bu	Me	Cl	Cl	CF ₃
II-1-52	H	Me	Br	Br	Cl	CF ₃
II-1-54	H	i-Pr	Br	Br	Cl	CF ₃
D1	H	i-Pr	CF ₃	H	Cl	Br
D2	H	Me	Me	CF ₃	Cl	CF ₃
D3	H	i-Pr	Me	Cl	Br	CF ₃
D4	Me	Me	Me	Cl	Cl	CF ₃
D5	H	Me	Me	OCF ₃	Cl	CF ₃

In Example A of the Declaration, Cotton leaves heavily infested by cotton aphids (*Aphis gossypii*) were dipped in preparations of test compounds II-1-4, diafenthiuron, and a 1:1 mixture thereof. After 1 day the per cent mortality was measured for each test. According to the Colby formula, the 1:1 mixture of difenthiuron and compound II-1-4 provided a synergistic effect compared to the single compounds.

In Example B of the Declaration, Soybean shoots were dipped into preparations of test compounds II-1-4, spinosad, and a 1:5 mixture thereof, and then infested with

Reply Dated December 2, 2010
To Office Action Dated June 2, 2010

FUNKE *et al.*
Appl. No. 10/578,512

cotton boll worm larvae (*Heliothis armigera*). After 3 days the per cent mortality was measured for each test. According to the Colby formula, the 1:5 mixture of compound II-1-4 and spinosad provided a synergistic effect compared to the single compounds.

In Example C of the Declaration, cabbage leaves heavily infested by green peach aphids (*Mysus persicae*) were sprayed with preparations of test compounds II-1-1, II-1-2, II-1-4, II-1-12, II-1-24, D1, D2, D3, D4, D5, abamectin, compound I-1, compound I-2 and diafenthionur. As indicated in the headings of Tables C1 and C2, the per cent mortality was measured for each test after 1 day and 6 days, respectively.

According to Tables C1 and C2, Abamectin was tested in a 1:1 ratio with compounds D1, D2, II-1-2, D3, D4 and D5. According to the Colby formula, the combinations of Abamectin and the tested compounds provided synergistic effects compared to the single compounds.

According to Tables C1 and C2, Compound I-2 was tested in a 25:1 ratio with compounds II-1-24, II-1-4, D3, D1, D4, D2, and D5. According to the Colby formula, the combinations of compound I-2 and the tested compounds provided synergistic effects compared to the single compounds.

According to Tables C1 and C2, Compound I-1 was tested in a 25:1 ratio with compounds II-1-1, II-1-12, II-1-2, II-1-52, II-1-24 and II-1-4. According to the Colby formula, the combinations of compound I-1 and the tested compounds provided synergistic effects compared to the single compounds.

Reply Dated December 2, 2010
To Office Action Dated June 2, 2010

FUNKE *et al.*
Appl. No. 10/578,512

According to Table C2, a combination of diafenthiuron and compound II-1-4 was tested in a 1:1 ratio. The combination of diafenthiuron with compound II-1-4 provided a synergistic effect compared to the single compounds.

In Example D of the Declaration, cabbage leaves were sprayed with preparations of compounds II-1-54, II-1-12, II-1-4, I-2, I-1, II-1-52, II-1-24 and D2, and infested with mustard beetle larvae (*Phaedon cochleariae*). As indicated in the headings of Tables D1 and D2, the per cent mortality was measured for each test after 2 days and 6 days, respectively.

According to Tables D1 and D2, combinations of compound I-2 with compounds II-1-54, II-1-12, II-1-4, II-1-52 and D2 were tested in 25:1 ratios. According to the Colby formula, the combinations of compound I-2 and the tested compounds provided synergistic effects compared to the single compounds.

According to Tables D1 and D2, combinations of compound I-1 with compounds II-1-54, II-1-12, II-1-4, II-1-52, II-1-24 and D2 were tested in 25:1 ratios. According to the Colby formula, the combinations of compound I-1 and the tested compounds provided synergistic effects compared to the single compounds.

In Example E of the Declaration, cabbage leaves were dipped in preparations of compounds II-1-4 and diafenthiuron and the resulting leaves infested with mustard beetle larvae (*Phaedon cochleariae*). After 4 days the per cent mortality was measured for each test. According to the Colby formula, the 125:1 mixture of difenthiuron and compound II-1-4 provided a synergistic effect compared to the single compounds.

Reply Dated December 2, 2010
To Office Action Dated June 2, 2010

FUNKE *et al.*
Appl. No. 10/578,512

In Example F of the Declaration, cabbage leaves were dipped in preparations of compounds II-1-4 and abamectin and the resulting leaves infested with diamond back moth larvae (*Plutella xylostella*). After 6 days the per cent mortality was measured for each test. According to the Colby formula, the 5:1 mixture of compound II-1-4 and abamectin provided a synergistic effect compared to the single compounds.

In Example G of the Declaration, cabbage leaves were sprayed with preparations of compounds D1, II-1-54, II-1-1, D4, D2, D5, II-1-2, D3, abamectin, I-2 and I-1, and infested with fall army worm larvae (*Spodoptera frugiperda*). As indicated in the headings of Tables G1 and G2, the per cent mortality was measured for each test after 2 days and 6 days, respectively.

According to Table G1, abamectin was tested in a 1:1 ratio with compounds D1, D4 and II-1-2. According to the Colby formula, the combinations of abamectin and the tested compounds provided synergistic effects compared to the single compounds.

According to Tables G1 and G2, compound I-2 was tested in a 25:1 ratio with compounds II-1-54, II-1-1, D5, II-1-2, and D3. According to the Colby formula, the combinations of compound I-2 and the tested compounds provided synergistic effects compared to the single compounds.

According to Tables G1 and G2, compound I-1 was tested in a 25:1 ratio with compounds D1, D4, D2, II-1-2 and D3. According to the Colby formula, the combinations of compound I-1 and the tested compounds provided synergistic effects compared to the single compounds.

Reply Dated December 2, 2010
To Office Action Dated June 2, 2010

FUNKE *et al.*
Appl. No. 10/578,512

In Example H of the Declaration, bean plants heavily infested by OP-resistant two-spotted spider mites (*Tetranychus urticae*) were sprayed with preparations of test compounds D1, II-1-52, II-1-1, II-1-12, II-1-2, I-1, II-1-54, D4, II-1-24, II-1-4, D2, D5, D3, abamectin and I-2. As indicated in the headings of Tables H1 and H2, the per cent mortality was measured for each test after 2 days and 6 days, respectively.

According to Table H-2, abamectin was tested in a 1:1 ratio with compounds D1, D4, D2, D5, II-1-2 and D3. According to the Colby formula, the combinations of abamectin and the tested compounds provided synergistic effects compared to the single compounds.

According to Tables H-1 and H-2, compound I-1 was tested in a 25:1 ratio with compounds D1, II-1-52, II-1-1, II-1-12, II-1-2, II-1-54, D4, II-1-24 and II-1-4.

According to the Colby formula, the combinations of compound I-1 and the tested compounds provided synergistic effects compared to the single compounds.

According to Table H-2, compound I-2 was tested in a 25:1 ratio with compounds D1, II-1-54, II-1-52, II-1-1, II-1-24, II-1-12, II-1-4 and D5. According to the Colby formula, the combinations of compound I-2 and the tested compounds provided synergistic effects compared to the single compounds.

In Example I of the Declaration, bean plants heavily infested by OP-resistant two-spotted spider mites (*Tetranychus urticae*) were dipped into preparations of test compounds II-1-9, I-2 and I-1. After 7 days the per cent mortality was measured for each test.

Reply Dated December 2, 2010
To Office Action Dated June 2, 2010

FUNKE *et al.*
Appl. No. 10/578,512

According to Table I1, compound I-2 was tested in a 1:125 ratio with compound II-1-9. According to the Colby formula, the combination of compound I-2 and compound II-1-9 provided a synergistic effect compared to the single compounds.

According to Table I1, compound I-1 was tested in a 1:125 ratio with compound II-1-9. According to the Colby formula, the combination of compound I-1 and compound II-1-9 provided a synergistic effect compared to the single compounds.

For the reasons set forth above, Applicants respectfully request that the Examiner reconsider the evidence of unexpected effects presented in the specification and in the Declaration and that the rejection be withdrawn.

Reply Dated December 2, 2010
To Office Action Dated June 2, 2010

FUNKE *et al.*
Appl. No. 10/578,512

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Robert W. Esmond
Attorney for Applicants
Registration No. 32,893

Date: Dec. 2, 2010
1100 New York Avenue, N.W.
Washington, D.C. 20005-3934
(202) 371-2600

1284162_5.DOC